





electrical parameter, and wherein the calibration device has a calibration transistor having a first source/drain terminal, which is coupled to the second source/drain terminal of the measuring transistor, and a second source/drain terminal, to which a second electrical reference potential is applied, and to the gate terminal of which it is possible to apply an electrical signal such that the electrical potential which is applied to the second source/drain terminal of the measuring transistor is set such that the alteration of the value of the physical parameter of the sensor element can at least partly be compensated for.

Claim 33 (Newly Added): The biosensor circuit arrangement as claimed in claim 31, wherein the calibration device comprises:

- a calibration transistor;

- a first constant-current source, which is coupled to respective second source/drain terminals of the measuring and calibration transistors that are connected in parallel with one another, for the provision of a predeterminable electrical current intensity; and

- a current mirror circuit, which is coupled to respective first source/drain terminals of the measuring and calibration transistors that are connected in parallel with one another, and which is connected such that it is used to set, for at least partly compensating for the alteration of the value of the physical parameter, the electrical potential at the gate terminal of the calibration transistor such that, in the absence of a sensor event, the current flows between the two source/drain terminals of the measuring transistor and of the calibration transistor are identical.

Claim 34 (Newly Added): The biosensor circuit arrangement as claimed in claim 31, wherein a third electrical reference potential is applied to the first source/drain terminal of the measuring transistor, and wherein the calibration device comprises:

a calibration transistor having a first and a second source/drain terminal;

a second constant-current source, which is coupled to the respective second source/drain terminals of the measuring and calibration transistors that are connected in parallel with one another, for the provision of a predeterminable electrical current intensity; and

a third constant-current source, which is coupled to the first source/drain terminal of the calibration transistor, for the provision of a further predeterminable electrical current intensity, the third constant-current source being connected such that it is used to set, for at least partly compensating for the alteration of the value of the physical parameter, the potentials that are applied to the terminals of the transistors such that, in the absence of a sensor event, the current flows between the two source/drain terminals of the measuring transistor and of the calibration transistor are identical.

Claim 35 (Newly Added): The biosensor circuit arrangement as claimed in claim 27, wherein the calibration device is set up such that it is used to convert a sensor signal of the sensor element, said sensor signal being brought about by a sensor event, using the principle of correlated double sampling to a value which is independent of the value of the physical parameter of the sensor element.







